



## STATE OF WASHINGTON

**STATE BUILDING CODE COUNCIL**Washington State Energy Code Development  
**Standard Energy Code Proposal Form**Code being amended: ☒ Commercial Provisions ☐ Residential ProvisionsCode Section # C409.4.12 C409.4.13

## Brief Description:

This proposal provides C406 credits to EnergyStar Most Efficient laundry equipment installed within dwelling units designated as Group R-2 prior to the issuance of the certificate of occupancy. This proposal also offers C406 credits to EnergyStar Most Efficient residential kitchen equipment such as dishwashers, refrigerators and freezers. Because the market is saturated with EnergyStar equipment, requiring EnergyStar Most Efficient equipment results in a more significant impact in energy savings. Commercial size washers and dryers rated as ENERGY STAR MOST EFFICIENT are not yet widely available, so spaces needing commercial size laundry equipment shall not be eligible for C406 laundry equipment credits.

The proposed changes to the standards are provided below. Changes to the standards are marked with red underlining (new language) and ~~strikethroughs~~ (deletions).

**TABLE C406.1**  
**EFFICIENCY PACKAGE CREDITS**

Code Section	Commercial Building Occupancy					
	Group R-1	Group R-2	Group B	Group E	Group M	All Other
	Additional Efficiency Credits					
1. More efficient HVAC performance in accordance with Section C406.2	2.0	3.0	3.0	2.0	1.0	2.0
2. Reduced lighting power: Option 1 in accordance with Section C406.3.1	1.0	1.0	2.0	2.0	3.0	2.0
3. Reduced lighting power: Option 2 in accordance with Section C406.3.2a	2.0	3.0	4.0	4.0	6.0	4.0
4. Enhanced lighting controls in accordance with Section C406.4	NA	NA	1.0	1.0	1.0	1.0
5. On-site supply of renewable energy in accordance with C406.5	3.0	3.0	3.0	3.0	3.0	3.0

6. Dedicated outdoor air system in accordance with Section C406.6b	4.0	4.0	4.0	NA	NA	4.0
7. High performance dedicated outdoor air system in accordance with Section C406.7	4.0	4.0	4.0	4.0	4.0	4.0
8. High-efficiency service water heating in accordance with Sections C406.8.1 and C406.8.2	4.0	5.0	NA	NA	NA	8.0
9. High performance service water heating in multi-family buildings in accordance with Section C406.9	7.0	8.0	NA	NA	NA	NA
10. Enhanced envelope performance in accordance with Section C406.10c	3.0	6.0	3.0	3.0	3.0	4.0
11. Reduced air infiltration in accordance with Section C406.11 c	1.0	2.0	1.0	1.0	1.0	1.0
12. Enhanced residential kitchen equipment in accordance with Section C406.12	<u>12.0</u>	<u>19.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
13. Enhanced laundry equipment in accordance with Section 406.13	<u>NA</u>	<u>6.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

a. Projects using this option may not use Item 2.

b. This option is not available to buildings subject to the prescriptive requirements of Section C403.3.5.

c. Buildings or building areas that are exempt from thermal envelope requirements in accordance with Sections C402.1.1 and C402.1.2 do not qualify for this package.

**C406.2.12 Residential Kitchen Equipment.** For projects with Group R-1 and R-2 occupancies, energy credits shall be achieved where all dishwashers, refrigerators, and freezers comply with all of the following:

1. Achieve the Energy Star Most Efficient 2021 label in accordance with the specifications current as of:

a. Refrigerators and freezers 5.0, 9/15/2014

b. Dishwashers 6.0, 1/29/2016

2. Be installed prior to the issuance of the certificate of occupancy.

For Group R-1 where only some guest rooms are equipped with both refrigerators and dishwashers, the table credits shall be prorated as follows:

[C406.2.12 table credits] × [floor area of guest rooms with kitchens] / [total guest room floor area]

**C406.2.13 Residential Laundry Appliances.** For projects with Group R-2 occupancies, energy credits shall be achieved where all clothes washers and dryers in the projects meet the following requirements:

406.13.1. Buildings and spaces designated as Group R-2 where each dwelling unit contains in-unit washer and dryer equipment shall meet the following requirements

1. Achieve the Energy Star Most Efficient label in accordance with the 2021 specifications

2. Be Installed prior to the issuance of the certificate of occupancy

For Group R-2 where only some guest rooms are equipped with both washers and dryers, the table credits shall be prorated as follows:

[C406.2.13 table credits] × [floor area of dwelling units with in-unit laundry] / [total dwelling unit floor area]

### Purpose of code change:

EnergyStar residential washer and dryer appliances have a high market penetration rate. Clothes washers have a market penetration of 50% and clothes dryers have a market penetration of 38%. (Energy Star 2019). While Energy Star specification is still a good requirement, the high adoption rates indicate that savings attributed to code will be reduced by natural market adoption, and that higher efficiency levels beyond Energy Star are possible for some appliances. One high-performance code recommendation is to require “Energy Star Most Efficient” products for appliances with this tier as an advanced specification. Residential washers and dryers qualifying as ENERGY STAR MOST EFFICIENT are available from several of the largest laundry equipment manufacturers including Samsung, LG, Whirlpool, Bosch, Miele, Beko, Bloomberg and more.

Your amendment must meet one of the following criteria. Select at least one:

- |  |   |
|--|---|
| <input type="checkbox"/> Addresses a critical life/safety need.  | <input type="checkbox"/> Consistency with state or federal regulations. |
| <input type="checkbox"/> The amendment clarifies the intent or application of the code.  | <input type="checkbox"/> Addresses a unique character of the state.     |
| <input checked="" type="checkbox"/> Addresses a specific state policy or statute.<br>(Note that energy conservation is a state policy) | <input type="checkbox"/> Corrects errors and omissions.                 |

Check the building types that would be impacted by your code change:

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Single family/duplex/townhome | <input checked="" type="checkbox"/> Multi-family 4 + stories | <input type="checkbox"/> Institutional |
| <input type="checkbox"/> Multi-family 1 – 3 stories    | <input type="checkbox"/> Commercial / Retail                 | <input type="checkbox"/> Industrial    |

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### Economic Impact Data Sheet

Briefly summarize your proposal’s primary economic impacts and benefits to building owners, tenants, and businesses.

Building owners and operators will benefit from lower energy use, lower water use and maintenance costs over the lifetime of the equipment. The majority of Energy Star Most Efficient dryers are ventless, which provides greater flexibility in the location of your laundry equipment and reduced installation costs.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal? (See OFM Life Cycle Cost [Analysis tool](#) and [Instructions](#); use these [Inputs](#). **Webinars on the tool can be found [Here](#) and [Here](#)**)

\$0.006853/square foot (For residential projects, also provide \$[Click here to enter text.](#)/ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

$0.0623 * 0.11 = 0.006853$

EnergyStar estimates a per unit cost of \$50 to \$200 for EnergyStar Most Efficient clothes washers and dryers. There are negligible incremental costs towards specification of Energy Star equipment prior to occupancy. Installing a ductless dryer would result in savings because of reduced labor and design costs.

Provide your best estimate of the annual energy savings (or additional energy use) for your code change proposal?

0.0623/ square foot (or) [Click here to enter text.KBTU/ square foot](#)

(For residential projects, also provide [Click here to enter text.KWH/KBTU / dwelling unit](#))

Show calculations here, and list sources for energy savings estimates, or attach backup data pages

Equipment	Rating	Average Annual Energy Use (kWh/Year)	Average Drum Capacity (kWh/Year)	Savings <sup>1</sup> (kWh/year)
Dryers	EnergyStar	361.41	4.62	86.55
	EnergyStar Most Efficient	274.86	5.27	
Washers	EnergyStar	131.32	4.19	31.73
	EnergyStar Most Efficient	99.60	4.56	

<sup>1</sup>Baseline EnergyStar equipment

<sup>2</sup>Larger systems removed from EnergyStar equipment database to align average system capacity

Equipment	Bldg Type	Total Dwelling SF	# Dwelling Units	Savings/Dwelling (kWh)	Annual Savings (kWh)	Annual Savings/SF (kWh)	Annual Combined Savings/SF (kWh)
Washer	Midrise	29,450	31	31.73	983.63	0.0334	0.0623
Dryer	Midrise	29,450	31	86.55	2,683.05	0.0911	
Washer	Highrise	75,050	79	31.73	2,506.67	0.0334	0.0623
Dryer	Highrise	75,050	79	86.55	6,837.45	0.0911	

\*Savings applied to WSEC Midrise and Highrise prototype buildings

Energy Star Database

<https://data.energystar.gov/Active-Specifications/ENERGY-STAR-Certified-Residential-Clothes-Washers/bghd-e2wd/data>

<https://data.energystar.gov/Active-Specifications/ENERGY-STAR-Certified-Residential-Clothes-Dryers/t9u7-4d2j>

List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application:

The plans examiner will verify that the design documents include EnergyStar Equipment per code requirements. Building inspector may verify that the Energy Star equipment is installed prior to the issuance of the certificate of occupancy.

**All questions must be answered to be considered complete. Incomplete proposals will not be accepted.**